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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/781,795	02/12/2001	Malcolm F. Ruppert	60,130-1004	6956

26096 7590 10/05/2004  
CARLSON, GASKEY & OLDS, P.C.  
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BIRMINGHAM, MI 48009

EXAMINER

VANAMAN, FRANK BENNETT

ART UNIT PAPER NUMBER

3618

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

  
**Office Action Summary**

Application No.

09/781,795

Applicant(s)

RUPPERT ET AL.

Examiner

Frank Vanaman

Art Unit

3618



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 23-31, 33-41, 43-46, 48-55, 57 and 58 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 28-31, 33-35, 37, 40, 41, 43-46, 48-55, 57 and 58 is/are allowed.
- 6) ☒ Claim(s) 23-27, 36, 38, 39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **Status of Application**

1. Applicant's amendment, filed July 23, 2004, has been entered in the application. Claims 23-31, 33-41, 43-46, 48-55, 57 and 58 are pending.

### **Claim Rejections - 35 USC § 103**

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 23, 24, 26, 27, 36 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anglada (US 1,543,044) in view of Varela (US 5,435,793). Anglada '044 teaches a drive unit including first and second axle drive shafts (18) co-linear and defining a lateral rotation axis, first and second wheel hubs (inside of 14) driven by the shafts, first and second gear sets including a pair of pinions (20) and a pair of ring gears (19), the pinions mounted to be driven by the first and second motors (15) which each define a longitudinal axis of rotation (co-linear and coaxial with 17, 21), the ring gears (19) mounted for rotation with the wheels, the motor longitudinal axes being perpendicular to the lateral axes of rotation, the motors being mounted at an angle wherein they extend generally vertically. The reference to Anglada '044 fails to teach the final drive as including a first and second planetary gear set located in the respective wheel hubs. Varela teaches a planetary gearing arrangement located within a wheel hub assembly (110, 120, 131, etc) each assembly including a sun gear (70), and a plurality of planet gears (80) which mesh with a ring gear hub (90). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the final drive for the wheel of Anglada '044 with a planetary reduction gearing as taught by Varela, the sun gear being driven from the shaft taught by Anglada which is in turn connected to the ring gear (19), for the purpose of allowing a high speed motor to be used and generate a desired quantity of torque.
4. Claims 23-27, 36 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anglada (US 1,540,526) in view of Varela. Anglada '526 teaches a drive unit including first and second axle drive shafts (13) co-linear and defining a lateral

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rotation axis, first and second wheel hubs (inside of 11, proximate ends of 13) driven by the shafts, first and second gear sets including a pair of pinions (20) and a pair of ring gears (21), the pinions mounted to be driven by the first and second motors (15) which each define a longitudinal axis of rotation (co-linear and coaxial with 19), the ring gears (21) mounted for rotation with the wheels, wherein first and second gear boxes (22) are provided for housing the respective first and second gear sets, the gear boxes being mounted to the motors (through 25), wherein a common axle housing is provided (between boxes 22 – see elements 23, 24) the motors being supported thereby (through 22, 25), the motor longitudinal axes being perpendicular to the lateral axes of rotation.

The reference to Anglada '526 fails to teach the final drive as including a first and second planetary gear set located in the respective wheel hubs. Varela teaches a planetary gearing arrangement located within a wheel hub assembly (110, 120, 131, etc) each assembly including a sun gear (70), and a plurality of planet gears (80) which mesh with a ring gear hub (90). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the final drive for the wheel of Anglada '526 with a planetary reduction gearing as taught by Varela, the sun gear being driven from the shaft taught by Anglada '526 which is in turn connected to the ring gear (19), for the purpose of allowing a high speed motor to be used and generate a desired quantity of torque. The reference to Anglada '526 as modified by Varela fails to explicitly teach the gearboxes as additionally including the planetary gear sets (claim 25), however the provision of a single enclosure to accommodate a plurality of related mechanical devices is not deemed to be beyond the skill of the ordinary practitioner, and as such, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the planetary gear sets, as well as the pinion and ring gear sets, in a single enclosure, for the purpose of simplifying the drive train, and reducing manufacturing costs.

#### **Allowable Subject Matter**

5. Claims 28-31, 33-35, 37 40-41, 43-46, 48-55, 57 and 58 are allowed.

### Response to Comments

6. Applicant's comments have been carefully considered. As regards the amendments to the claims and the reference to Van Dest, previously applied, the examiner agrees that the Van Dest reference fails to teach each and every claim limitation as now recited. Note the references to Anglada ('044 and '526) and Varela, all cited previously, as now applied in response to applicant's amendment to the pertinent claims. Applicant's comments concerning the definition of "transverse" are noted, however applicant is reminded that applicant's own previous use of the term, and the surrounding context (see the previous instance of claim 23, lines 4-6): *"first and second wheel hubs driven by said first and second driving axle shafts respectively about said lateral axis of rotation to move a vehicle along a ground surface in a direction transverse to said lateral axis of rotation"* would inherently require an orthogonal characteristic to be associated with the term "transverse" unless applicant envisions a wheel hub which may rotate about an axis and drive a vehicle in a direction which is *not* orthogonal to that axis of rotation, which feature is not disclosed in applicant's specification.

### Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to F. Vanaman whose telephone number is 703-308-0424. Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is 703-308-1113.

As of May 1, 2003, any response to this action should be mailed to:

Mail Stop \_\_\_\_\_  
Commissioner for Patents  
P. O. Box 1450  
Alexandria, VA 22313-1450,

Or faxed to one of the following fax servers:

Regular Communications/Amendments: 703-872-9326  
After Final Amendments: 703-872-9327  
Customer Service Communications: 703-872-9325

**F. VANAMAN**  
**Primary Examiner**  
**Art Unit 3618**

  
9/29/04